Evaluation of factors affecting social media addiction in adolescents during the COVID-19 pandemic

Factors affecting social media addiction in adolescents

Şenay Kılınçel[1], Gürkan Muratdağı[2]
[1]Department of Child Development, Istanbul Gelişim University, Istanbul
[2]Department of Family Medicine, Sakarya University Medical Faculty, Sakarya, Turkey

Abstract

Aim: Daily internet use, particularly the use of social media, is preferred as a method for coping with stress and anxiety caused by the current outbreak of coronavirus disease 2019 (COVID-19) or for reducing depressive mood. This study aimed to investigate the relationship of changes in social media use among children aged 12 to 18 years who were at risk for excessive use of social media during the pandemic period with anxiety and a sense of loneliness.

Material and Methods: The study population consisted of children aged 12 to 18 years and living in Turkey. Participants completed the COVID-19 information form, the Social Media Disorder Scale, the Loneliness Scale, and the State-Trait Anxiety Inventory (STAI).

Results: This study evaluated the data of 1,142 patients. The mean age of the participants was 15.6 years, and 63.2% were females. Among the participants, 63.8% stated that they knew someone diagnosed with COVID-19 in their family or close environment, and 7.1% stated that they were diagnosed with COVID-19. Furthermore, 46.4% stated that what they learned from the media increased their anxiety, and 60.4% stated that their academic success decreased during the pandemic period. In the model, STAI (B: 0.166 p: 0.001), age (B: 0.397, p: 0.001), and UCLA loneliness (B: 0.150, p: 0.001) were observed to predict social media addiction.

Discussion: The present study has revealed factors predicting an increase in social media addiction in this period, during which the use of social media by adolescents in the high-risk group for social media addiction has increased. Taking the necessary measures to reduce the risks and increase the protective factors is the most important way to protect adolescents' mental health in times of difficult life conditions.

Keywords

Adolescent; Anxiety; Loneliness; Social media

Introduction

The coronavirus disease 2019 (COVID-19) starting with the reporting of a new virus from China at the end of 2019 was declared as a global epidemic (pandemic) by the World Health Organization (WHO) on March 11, 2020. Upon the identification of the first COVID-19-positive case in Turkey, various measures have been taken to prevent the spread of the epidemic. Within the framework of these measures, face-to-face classes at school were suspended as of March 16, 2020, and distance education was started on March 23, 2020 through Education Information Network (EBA) channels (available at: https://www.meb.gov.tr/bakan-selcuk-23-martta-baslayacak-uzaktan-egitime-iliskin-detaylari-anlatti/haber/20554/tr2020). Although there have been several attempts to reopen schools gradually from time to time, the increase in the number of cases has caused the re-introduction of restrictions. The suspension of face-to-face education continues and school classes are provided through distance education. The measures taken were not only limited to the closure of schools; the lockdown has been imposed on certain age groups. According to the latest decisions, as of 20 November 2020, individuals under the age of 20 are allowed to go out between 13:00 and 16:00 during the day (available at: http://www.istanbul.gov.tr/kurumlar/istanbul.gov.tr/PDF/il_Hifzissihha_Meclis_Karari_No_104.pdf). Epidemics have various effects on human behavior and mental health. Psychological problems, such as anxiety, depression, insomnia, and anger, are known to be more common in individuals diagnosed with COVID-19 or suspected of being positive for COVID-19, and in those who have close contact with infected patients. Social isolation, quarantine, and restrictions have increased the time people spend at home, deteriorated their daily routines, and caused them to experience social and economic problems [1]. As a result of all these factors, individuals may suffer from psychiatric problems, including increased stress, loneliness, depressive mood, anger and adjustment disorders, trauma-related problems, and behavioral addictions [2].

During epidemic periods, communication tools as television, telephone, and the internet make it easier to deliver and share accurate information about the disease to the majority of the population. Furthermore, daily internet use, particularly the use of social media and online games, is the preferred as a coping method to alleviate stress and anxiety caused by the outbreak or to reduce depressive mood. According to an international study investigating the use of media at home during the COVID-19 pandemic, 67% of individuals watch more news, 45% spend more time on messaging, whereas 44% spend more time on social media, and 36% are engaged in computer/video games more (A W. Consuming media at home due to the coronavirus worldwide 2020, by generation: Statista. Available at: https://www.statista.com/statistics/1106563/home-media-consumption-coronavirus-worldwide-by-generation/).   In particular, there has been an increase of 75% in online games and game-related use of the internet (P S. Gaming Usage Up 75 Percent Amid Coronavirus Outbreak, Verizon Reports Hollywood Reporter2020. Available at: https://www.hollywoodreporter.com/news/gaming-usage-up-75-percent-coronavirus-outbreak-verizon-reports-1285140). Online games are thought to be less harmful than many methods used to cope with stress,

such as alcohol and drug use or overeating [3]. However, being less harmful does not mean it does not harm. Uncontrolled gaming may turn into a habit that can negatively affect the lives of vulnerable and high-risk groups [3]. In this period, requiring social isolation and children and adolescents to stay at home, unhealthy gaming to cope with stress, disruption of sleep patterns, and increased sedentary lifestyle turn into an insidious vicious circle with excessive gaming [3].

Considering that the restrictions introduced mostly cover individuals under the age of 20, social isolation has mostly affected adolescents and young adults. Lockdown, social isolation, concerns about the future, mental problems, economic problems, and excessive free time lead to an increase in addictions [3].

This study aimed to investigate the relationship of changes in social media use among children aged 12 to 18 years, who were at risk for excessive use of social media, during the pandemic period with anxiety and a sense of loneliness.

Material and Methods

This was an online cross-sectional self-reported survey. The study population consisted of children aged 12 to 18 years and living in Turkey. Data were collected through an online survey created using Google Forms (Google, California, USA), which was sent to smartphones of families in the databases of 12 different schools and their children, using the snowball sampling method. A total of 1,234 individuals participated in the survey and 1,142 of them were found to meet the age criteria and answered all questions.

Sociodemographic Data Form: This form was developed by the researchers. It includes questions about the participants' age, gender, chronic illness, and whether they have applied to a psychiatric clinic before.

COVID-19 Data Form: This form was developed by the researchers to question participants' status of getting information about the disease during the COVID-19 pandemic, whether a person was infected or knew someone who was infected, the level of anxiety about the disease, and change in school success.

Social Media Disorder (SMD) scale: This scale, which was developed by van den Eijnden et al. [4] is a Likert-type scale consisting of nine items and one dimension. It was adapted to Turkish by Savcı, Ercengiz and Aysan [5]. The reliability of the SMD was assessed by the test-retest method and Cronbach's alpha internal consistency reliability coefficient in three different samples. The Cronbach's alpha coefficient of the SMD was found to be 0.83, 0.86, and 0.86, and the three-week test-retest correlation was 0.805. There is no reverse-scored item on the scale. High scores indicate an increased risk of social media disorder/addiction.

State-Trait Anxiety Inventory (STAI): The scale was developed by Spielberger et al. [6]. It has two subscales, each consisting of 20 items. State Anxiety Scale (STAI-S): It determines how a person feels at a particular time and under a particular condition. Trait Anxiety Scale (STAI-T): It determines how a person feels regardless of the time and situation he/she is in. Feelings or behaviors expressed in the STAI-S and STAI-T are answered as "almost never", "sometimes", "often", and "almost

always" depending on the intensity of the relevant experience. The total score of reverse expressions is subtracted from the total score obtained for direct expressions. A predetermined constant value is added to the number obtained. The total value obtained shows the anxiety score of the individual. The total score from each scale ranges from 20 to 80. It was adapted to Turkish by Oner and Le Compte, and the authors reported its Cronbach's alpha internal consistency coefficient as 0.83-0.87, test-retest reliability as 0.71-0.86, and item reliability as 0.34-0.72 (Oner N, LeCompte WA. State-trait anxiety inventory handbook. 1985).

UCLA Loneliness Scale: The scale was developed by Russel et al. [7]. It is a four-point Likert-type self-assessment questionnaire aimed at determining the general loneliness of anindividual. The scale consists of 20 items: 10 positively scored (expressions not containing loneliness) and 10 negatively scored (expressions containing loneliness). Demir conducted the Turkish reliability and validity study of the scale and reported its Cronbach's alpha internal consistency coefficient as 0.96 and the test-retest reliability coefficient as 0.94 [8].

Statistical Analysis: Statistical processing and analysis of the data were performed using the Statistical Package for Social Sciences (SPSS) statistics program for Windows version 15.0 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were expressed as mean (±) standard deviation, median (minimum-maximum), frequency distribution, and percentage. Visual (histogram and probability graphs) and analytical (Kolmogorov-Smirnov, Shapiro-Wilk tests) methods were used to determine whether the variables followed a normal distribution. Pearson's correlation coefficient was used for correlation analysis.

Ethics Statement: Approval for the study was granted by the Sakarya University Ethical Committee with Approval no:71522473/050.01.04/648, dated December 28, 2020. All patients signed informed consent for participation in this study, and their anonymity is preserved.

Results

This study evaluated the data of 1,142 patients. The mean age of the participants was 15.6 years and 63.2% were females; 84.7% of the participants were attending high school, 94.5% had access to distance education, and 6.0% reported that they had applied to a psychiatry clinic before. Sociodemographic characteristics are presented in Table 1.

Among the participants, 63.8% stated that they knew someone diagnosed with COVID-19 in their family or close environment, and 7.1% stated that they were diagnosed with COVID-19. Information about the disease was observed to be most frequently obtained from social media (40.3%). Furthermore, 46.4% stated that what they learned from the media increased their anxiety6 and 60.4% stated that their academic success decreased during the pandemic period. Data related to the COVID-19 pandemic are presented in Table 2.

When the relationship between scale scores was examined, SMD was observed to have a statistically significant positive correlation with STAI Total (r: 0.417), STAI-T (r: 0.367), STAI-S (r: 0.380), and UCLA Loneliness Scale (r: 0.093) (Table 3).

In multiple linear regression analysis performed with retrospective elimination to predict social media addiction,

Table 1. Sociodemographic Characteristics

Study Parameter	Mean±SD	(n:1142)
Age	15.6±2.8	(n:1142)
Gender		
Male	36.8%	(n:420)
Female	63.2%	(n:722)
Educational institution		
High school	84.7%	(n:967)
Secondary school	15.3%	(n:175)
Distance education	dddd	dddd
Yes	94.5%	(n:1079)
No	5.5%	(n:63)
Chronic Disease		
Yes	8.1%	(n:92)
No	91.9%	(n:1050)
Psychiatric application		
Yes	6.0%	(n:69)
No	94%	(n:1073)

Note: SD: Standard Deviation

Table 2. Data related to COVID-19 pandemic

Study Parameter	%	(n:1142)
Has anyone in your family or close contacts been diagnosed with COVID-19?		
Yes	63.8	729
No	36.2	413
Have you been diagnosed with COVID-19?		
Yes	7.1	81
No	92.9	1061
Where do you get information about COVID-19?		
Social media	40.3	460
Television	38.4	438
News websites	15.5	177
I don't follow	3.1	35
From my family or close contacts	2.7	31
How has what you learned from the media affected your anxiety during COVID-19?		
No change	51.0	582
Increased my anxiety	46.4	530
Decreased my anxiety	2.6	30
What is your level of concern about the impact of COVID-19 on your future school life?		
I have no concerns at all	6.0	68
I am very little concerned	7.2	82
I am slightly concerned	29.3	335
I am significantly concerned	26.8	306
I am greatly concerned	30.7	351
What is your level of concern about the impact of COVID-19 on your future social life?		
I have no concerns at all	7.4	84
I am very little concerned	11.4	130
I am slightly concerned	30.2	345
I am significantly concerned	23.8	272
I am greatly concerned	27.2	311
How has your educational success changed during the pandemic?		
Has not changed	26.7	305
My school success has increased	12.6	144
My school success has decreased	60.4	690

Table 3. The relationship between social media addiction, state-trait anxiety, and loneliness

Study parameters	1	2	3	4	5
Social Media Addiction (1)					
STAI					
State (2)	0.380*	-			
Trait (3)	0.367*	0.594*	-		
Total (4)	0.417*	0.933*	0.843*	-	
Loneliness Scale (5)	0.093*	-0.047	0.017	-0.024	-

Note: STAI: State-Trait Anxiety Scale, *p<0.01

the following variables were analyzed: STAI, UCLA loneliness, age, school success, presence of COVID-19 diagnosis in the person himself/herself, his/her family or relatives, gender, and presence of mental illness prior to the pandemic. At the fourth step, the model was found to be significant ($F_{(4, 1133)}$, p <0.001), and the R^2 value was calculated to be 0.30. In the model, STAI (B: 0.166 p: 0.001), age (B: 0.397, p: 0.001), and UCLA loneliness (B: 0.150, p: 0.001) were observed to predict social media addiction.

Discussion

The present study included a total of 1,142 children aged 12–18 years. The mean age of the participants was 15.6 years, and most of them had access to distance education. Social media was found to be the most commonly used tool by the participants to obtain information. Almost half of the participants reported that the information they learned from the media increased their anxiety levels, while very few reported that their anxiety decreased. The literature review has shown that anxiety symptoms during the pandemic period include the presence of peer communication, physical exercise, following news about the epidemic less, and access to psychological support resources are the most important factors that protect adolescents against depression [9]. Infectious diseases have a complex relationship with mass media (e.g. television, internet, and radio) [10]. In situations influencing the whole world (e.g. a pandemic), communication tools such as social media become very important for informing people about emergencies and for timely communicating the frequently changing decisions [11]. Studies emphasize that media is a highly effective tool to protect and maintain public health if it is used logically, consciously, and correctly [10]. On the other hand, besides being used for providing accurate information, it also contains too much misleading information. Publication of various conspiracy theories on public networking sites and the spread of unfounded rumors are frequently encountered situations at the present time. In a study investigating the relationship between the increase in the spread of the disease and the use of the social media site Facebook as an information source following the Zika virus in the United States, the authors found that the misleading posts were far more popular than the posts dispersing accurate information about the disease and aroused more curiosity in the society [12]. In another study, misinformation on social media was reported to increase people's perception of risk of disease, negatively affect their stress levels, and lead to an

anxiety-dominated environment [13]. Therefore, it is necessary to develop effective preventive methods and strategies to combat the spread of false, unfounded, and misleading news in pandemic periods, particularly for the vulnerable population [14].

The majority of the participants were observed to have a decrease in their academic success and were concerned about their future school life. In a study reported from Turkey, the opinions of eighth- and 12th-grade students on exam anxiety were evaluated, and the results showed that students had more exam anxiety during the pandemic period. Furthermore, in the same study, the majority of the students stated that passing the exam under pandemic conditions would adversely affect their success [15]. The most common problems experienced by adolescents during the pandemic period are reported to be the absence of routines established by the school, having a monotonous life at home, disruption in normal sleep patterns, inability to cope with negative emotions (e.g. anxiety), inappropriate eating behaviors, attention and concentration problems, and decrease in academic success due to decreased motivation [16]. Studies have further shown that evaluating this period as an opportunity for personal development, understanding the value of important moments and people in life, adopting positive thoughts such as setting future goals, maintaining daily routines, and organizing regular meetings with peers and family members help to cope more easily with the uncertainty and anxiety caused by the pandemic and increase psychological resilience [13].

The risk of social media addiction was observed to increase as the level of anxiety and loneliness increased. In a study conducted at the beginning of the pandemic in China, the effects of repeated exposure to media on mental health were investigated, and high levels of daily media exposure were found to increase negative mood and severity of depression [17]. In a study on parental reports conducted in Italy and Spain, 85.7% of the parents reported that their children experienced changes in their emotional state and behaviors, such as difficulty in concentrating, boredom, irritability, restlessness, nervousness, feelings of loneliness, uneasiness, and worries, during the pandemic period. They further reported that their children started to spend more time in front of screens [18]. In the study reported from Turkey, the views of eighth- and 12th-grade students on their mental state were evaluated and it was reported that about 70% of the students were negatively affected by the pandemic, 65% felt lonely at home, and the majority of the students, particularly those attending 12th grade, felt depressed [15]. In a study involving Chinese adolescents aged 13-17 years, the use of negative coping methods, such as denial, avoidance, and substance use, was reported to cause an increase in depression, anxiety, and stress reactions, whereas the use of positive coping methods, such as problem-solving, planning, and cognitive restructuring and high psychological resilience scores, which were expressed as the ability to maintain mental well-being in the face of difficult living conditions, were shown to be protective against depression and anxiety [19]. The results of the present study suggest that social media, which has been used significantly during the pandemic period, is used by adolescents mostly as a

strategy for coping with negative emotions.

Furthermore, age, anxiety level, and feeling of loneliness have been observed as factors predicting social media addiction. Similar to the present study, older age and higher stress score parameters have been shown to be associated with internet addiction risk among adolescents in the study involving Chinese children and adolescents aged six to 18 years. In the same study, internet addiction risk has been further shown to be associated with male gender and depression symptoms [20].

Conclusion

The present study has revealed factors predicting an increase in social media addiction during this period, when the use of social media by adolescents in the high-risk group for social media addiction has increased. Taking the necessary measures to reduce the risks and increase the protective factors is the most important way to protect adolescents' mental health in times of difficult life conditions. This study has shown that the use of correct methods to cope with loneliness and stress has a positive effect on the mental health of adolescents.

References

1. Yezli S, Khan A. COVID-19 social distancing in the Kingdom of Saudi Arabia: Bold measures in the face of political, economic, social and religious challenges. Travel Med Infect Dis. 2020;37:101692.
2. Xiang Y-T, Yang Y, Li W, Zhang L, Zhang Q, Cheung T, et al. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. Lancet Psychiatry. 2020;7(3):228-9.
3. Dubey MJ, Ghosh R, Chatterjee S, Biswas P, Chatterjee S, Dubey S. COVID-19 and addiction. Diabetes Metab Syndr. 2020;14(5):817-23.
4. Eijnden R, Lemmens J, Valkenburg P. The social media disorder scale. Computers in Human Behavior. 2016;61:478-87.
5. Savci M, Ercengiz M, Aysan F. Turkish Adaptation of the Social Media Disorder Scale in Adolescents. Arch Neuropsychiatry. 2018;55(3): 248-55.
6. Spielberger C, Gorsuch R, Lushene R, Vagg P, Jacobs G. Manual for the State-Trait Anxiety Inventory. USA: Consulting Psychologists Press: Palo Alto. CA; 1983.
7. Russell D, Peplau LA, Cutrona CE. The revised UCLA Loneliness Scale: concurrent and discriminant validity evidence. J Pers Soc Psychol. 1980;39(3):472-80.
8. Demir A. UCLA yalnızlık ölçeğinin geçerlik ve güvenirliği (Validity and reliability of UCLA loneliness scale). Psikoloji dergisi/ Psychology journal. 1989;7(23):14-18.
9. Jiao WY, Wang LN, Liu J, Fang SF, Jiao FY, Pettoello-Mantovani M, et al. Behavioral and emotional disorders in children during the COVID-19 epidemic. J Pediatr. 2020;221:264-6.
10. Yan Q, Tang S, Gabriele S, Wu J. Media coverage and hospital notifications: Correlation analysis and optimal media impact duration to manage a pandemic. J Theor Biol. 2016;390:1-13.
11. O'Brien M, Moore K, McNicholas F. Social media spread during Covid-19: the pros and cons of likes and shares. Ir Med J. 2020;113(4):52.
12. Sharma M, Yadav K, Yadav N, Ferdinand KC. Zika virus pandemic—analysis of Facebook as a social media health information platform. Am J Infect Control. 2017;45(3):301-2.
13. Wang Y, McKee M, Torbica A, Stuckler D. Systematic literature review on the spread of health-related misinformation on social media. Soc Scie Med. 2019;240:112552.
14. Southwell BG, Dolina S, Jimenez-Magdaleno K, Squiers LB, Kelly BJ. Zika virus–related news coverage and online behavior, United States, Guatemala, and Brazil. Emerg Infect Dis. 2016;22(7):1320-1.
15. Karataş Z. COVID-19 Pandemisi Sürecinin LGS ve YKS Sınavına Hazırlık Sürecinde Olan Çocuk ve Ergenlerin Psikolojilerine Yansımalarının İncelenmesi (Investigation of COVID-19 Pandemic Process Reflections on the Psychology of Children and Adolescents in the Preparation Process for LGS and YKS Exam). Gençdoğan B, editor. Child and Adolescent Psychology During Pandemic. 1st ed. Ankara: Turkey Clinics; 2020. p.54-74.
16. Lee J. Mental health effects of school closures during COVID-19. Lancet Child Adolesc Health. 2020;4(6):421.
17. Yao H. The more exposure to media information about COVID-19, the more distressed you will feel. Brain Behav Immun. 2020;87:167-9.
18. Orgilés M, Morales A, Delvecchio E, Mazzeschi C, Espada JP. Immediate psychological effects of the COVID-19 quarantine in youth from Italy and Spain. Front Psychol. 2020;11:2986.
19. Zhang C, Ye M, Fu Y, Yang M, Luo F, Yuan J, et al. The psychological impact of the COVID-19 pandemic on teenagers in China. J Adolesc Health. 2020;67(6):747-55.
20. Dong H, Yang F, Lu X, Hao W. Internet addiction and related psychological factors among children and adolescents in China during the coronavirus disease 2019 (COVID-19) epidemic. Front Psychiatry. 2020;11:751.